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The Developing Live Spiny Lobster Industry

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Introduction

A live spiny lobster industry has developed in the last few years and has become significant, with potential for future growth. This paper will describe this trend as well as provide some background information and implications for fisheries management consideration.

Fishing Industry

The Florida spiny lobster, Panulirus argus, is a decapod crustacean belonging to the family Palinuridae which contains almost 50 species that are principally tropical and subtropical in distribution. These palinurids support major fisheries worldwide, the five largest being found in Australia, South Africa, Brazil, Cuba, and the United States. In 1995, Florida accounted for 91 percent of U.S. spiny lobster production. California, Hawaii, Puerto Rico and the U.S. Virgin Islands accounted for the remainder.

The Florida spiny lobster fishery began around the turn of the century. However, significant production (consistently more than one million pounds annually) did not begin until 1941. Florida's heaviest annual catch of spiny lobsters was recorded in 1972 when fishermen landed 11.4 million pounds. That catch occurred when Florida boats were making substantial catches in Bahamian waters and landing them in Florida. Production has been averaging about six million pounds a year since 1980. In 1995, landings totaled 7.0 million pounds with a dockside (ex-vessel) value of 31.8 million dollars, a record. The current season opened in August with heavy landings and low dockside prices. This is not an uncommon occurrence at the beginning of the season, according to Ed Little, Fisheries Reporting Specialist for the National Marine Fisheries Service (NMFS) in Key West.

Management of spiny lobster occurs under a cooperative arrangement among the Florida Marine Fisheries Commission, the Florida Department of Environmental Protection, the South Atlantic Fisheries Management Council, the Gulf of Mexico Fisheries Management Council, and the NMFS.

The commercial fishing season extends from August 6 to March 31. Size limit regulations require that carapace length be greater than 3", and that lobsters be landed whole except under special permits. Over 2,000 spiny lobster fishing licences were issued for the 1995-1996 season. The spiny lobster fishery is now a restricted species fishery and it has become more difficult to enter the fishery.

Spiny lobster boats range in length from about 20 feet to 60 feet, but most boats in the fishery range from 35 feet to 40 feet. There are no freezer boats in the fishery. Most boats make one-day trips and the catch is kept in live wells or shaded boxes. Some boats, especially those fishing in deep waters further offshore, make three to five-day trips and keep lobsters on ice. Dockside (ex-vessel) prices vary according to form. For illustrative purposes, prices might be as follows:

1. <u>Live</u> ($3.75/pound) These lobsters are given "TLC" in a live well to maintain viability (for the live market).

2. <u>Fresh</u> ($3.50/pound) Lobsters which are kept cool in shaded boxes. Many are still alive when they are unloaded. They yield a high-quality processed product.

3. <u>Fresh/iced</u> ($3.25/pound) These lobsters are the result of multi-day trips, iced, seldom landed alive.

4. <u>Fresh/iced/extra large</u> ($3.00/pound) These lobsters are more than two pounds each, typically the result of deep water fishing, usually iced.

It is not uncommon for spiny lobster fishermen to engage in other fisheries, such as those for stone crab or golden crab, during the latter part of the spiny lobster open season when catch rates drop, as well as during the closed season.

Buoyed traps are the principal gear, made of wood, wire-reinforced wood, plastic, or wire, of dimensions 3 feet by 2 feet by 2 feet. Most of the spiny lobster fishery occurs on habitat associated with the Florida Keys and adjacent grounds, extending from the Dry Tortugas to Palm Beach.

During April 1996, a contentious situation surfaced that was induced by the proposed withdrawal by NMFS of the Spiny Lobster Fishery Management Plan (FMP) which covers federal waters (EEZ). Fishermen harvesting spiny lobster from the EEZ were concerned that their way of fishing would be jeopardized if the FMP withdrawal took place. The State of Florida does not authorize the use of wire traps as a lobster gear, while federal regulations allow their use. Without the FMP, management of spiny lobster would fall entirely to the State. Wire traps are favored by fishermen that fish the deeper federal waters because of their durability and ease of handling. Currently, NMFS has placed withdrawal of the spiny lobster FMP "on hold."

Processing and Marketing

Historically (pre-1980) the spiny lobster was rarely marketed alive although lobster frequently reached fish houses in the Florida Keys in live condition before being processed there or trucked to Miami for processing.

The main product forms of spiny lobster are:

1. Whole - raw ("whole green"): available fresh but usually frozen. Usually shipped in a 20-22 pound carton.

2. Whole - cooked: available fresh but usually frozen. Usually shipped in a 20-22 pound carton.

3. Tails - raw ("green tails"): frozen and usually deveined, shell-on. Deveining involves removal of the intestinal tract while leaving the meat and shell intact. Tails are usually shipped in 10 pound boxes, four boxes to a master carton.

4. Live: usually shipped in 10 kilo boxes.

Spiny lobster has become a gourmet item, frequently occupying the premier niche on restaurant menus and a favorite for special occasions and celebrations. In the United States, it is more expensive than American lobster (1995 whole weight average ex-vessel price for American lobster was $3.24 per pound versus $4.85 for spiny lobster). In most foreign markets, spiny lobsters command a price that is two or three times that of American lobster.

The domestic restaurant industry constitutes the major market for the whole raw, whole cooked, and raw tail market forms. Spiny lobster is also sold through supermarkets and retail fish markets, but this constitutes a much smaller volume according to Henry McAvoy, Development Representative, Florida Bureau of Seafood and Aquaculture. The live market is primarily an export market, and will be discussed in further detail.

Much of the U.S. demand for spiny lobster is being supplied by imports from Latin America (29 million pounds in 1995) comprised mostly of frozen raw tails (due to harvesting methods and lower freight costs per unit of value).

Export Data

Export data for spiny lobster was examined. Live spiny lobster exports for 1995 were reported as 123.9 metric tons (273,200 pounds). This data appears to be seriously flawed. Several wholesalers reported that individual companies had exported more than the official total.

The data, which is collected by U.S. Customs Service and collated by the Bureau of the Census, was examined on a transaction (individual shipment) basis by the author and Bob Ross, International Trade Specialist, NMFS, Northeast Region. It was determined that much of the spiny lobster export volume had been counted as exports of American lobster (New England lobster). This problem appears to have been caused by faulty data entry due to coding errors. Industry leaders have provided estimates on the volume of live spiny lobster exports industry-wide that range from 7% to 30% of total production (landings).

Live Spiny Lobster Industry

In order to describe this developing industry, the author conducted field and phone surveys of wholesalers, processors, fishermen, and exporters in Miami and the Florida Keys.

Until a few years ago, no one attempted to ship live spiny lobsters to distant markets because there was an unacceptable amount of mortality in transit. However, recent improvements in lobster handling, air routes, and packing technology have made it possible to ship live lobsters to markets where demand exists.

Around 1990, innovators in the live spiny lobster industry began to experiment with different packing methods, the goal being to produce a lightweight container that would maintain spiny lobster alive during air shipment. Early air freighting of live spiny lobster involved much experimentation and mortality rates varied. Successful techniques were eventually achieved and are still being perfected.

Basically, the methodology involves creation of a cool, moist environment with sufficient oxygen within the container. This environment must be stable throughout the shipment. The goal was achieved through the use of moist wood shavings, gel packs (blue ice) and Styrofoam-insulated containers. The cool environment apparently lowers the metabolism of the spiny lobster, putting them into a semi-dormant state during which oxygen requirements are reduced and stress is minimized. No water other than the moisture provided by the wood shavings is needed. Lobsters in transit remain viable for 48 hours with less than 5% mortality, according to some exporters.

Lobsters that have been maintained alive on-board are placed in live holding tanks as soon as possible after being brought to shore, usually at dealers' facilities. There are also some ancillary live holding facilities at strategic locations in the Florida Keys that are utilized by fishermen as drop-off points for live lobsters. Under arrangements with dealers, the lobsters are periodically collected and taken to the primary holding facilities. When orders are received, lobsters are removed from the holding tank and placed in the cool, moist, insulated boxes. Exporters commonly fill LD3's (large air freight containers) with boxed live lobsters (about 1000 pounds per LD3).

In order to ensure viability, product temperature must be maintained within certain parameters. This requires that exporters take into consideration the flight times and ambient temperatures throughout the shipment when initially adding the coolant to the containers.

Product destined for western Pacific countries is commonly air freighted to transhipment plants in Los Angeles first. There, the lobsters are unpacked and revitalized in salt water tanks. After a period of revitalization, the lobsters are repacked for the remaining flight to the Asian destination. Techniques have evolved to the point that this year, for the first time, live spiny lobsters are being flown directly, without revitalization, to Asian markets. Live product destined for Europe is flown directly from Miami International Airport.

Most of the major spiny lobster wholesalers are now involved in the live trade. Although some initially were very reluctant, the success and profits achieved by their competitors encouraged them to participate in the market. Currently there are about four large and five small concerns involved in exporting live spiny lobster.

At this time, Asian markets appear to be the strongest foreign markets for live U.S. spiny lobster, especially Taiwan and Japan. Asian markets put a high premium on quality and live product is considered to be paramount. Markets of lesser importance are found in France, the Netherlands, S. Korea, Italy, Canada, and Hong Kong, according to U.S. Census Bureau data.

Taiwan has experienced a 260% growth in spiny lobster imports (all market forms) during the last five years, with continued growth expected by industry insiders. This rapid growth is attributable to the considerable rise in consumer spending power and the propensity to spend on high value food items, especially when entertaining. Another important factor is the depletion of the indigenous spiny lobster stock due to overfishing. Taiwan is now 99% reliant on imports. The U.S. currently has 7% of the import market (Foreign Agricultural Service, 1996). Spiny lobster is held in very high regard by the Taiwanese, with local customs dictating that it be the main course at most wedding banquets. A temporary downturn in the Taiwanese market is evident at the time of this report, the result of slow economic conditions engendered by mainland China's recent threatening posture.

Japanese acceptance of Florida spiny lobster is very good, second only to South African rock lobster which has redder coloration, a trait desired by Japanese consumers. The appearance of the lobster is important to the Japanese (intact body with no legs or antenna broken). The average size of live spiny lobster from Florida is about 500 grams (1.1 pounds), with an average value of 3,000 yen per kilogram ($13.60 per pound), according to data collected at the Tsukiji Central Wholesale Market in Tokyo (provided by Tom Asakawa, Fisheries Specialist, U.S. Embassy in Tokyo). Restaurant prices in Japan reportedly run 3-4 times Japanese wholesale prices.

Most live spiny lobster exports occur during August and September. This is when Florida Keys production is at its highest and this period precedes open seasons for spiny lobsters in Australia, Mexico and California. This fortuitous combination of high Florida production and critical timing provides the two-month "window" that is driving the live export industry.

Legal Size and Market Size

State and Federal laws currently require harvested spiny lobster to have a carapace length greater than 3" in order to be legal. This size limit seems well suited to allow the production of live spiny lobster of the size in demand in foreign markets, i.e., it results in a significant production of spiny lobster that weigh between 1-1.25 pounds. Exporters report that this is an excellent size for the foreign live market. If the carapace size limit were changed to 3.5", for example, the result would be production of lobster weighing 1.5 pounds and above, too big for Asian markets, although somewhat acceptable for sectors of the European market. Of course a higher size limit would also affect the domestic market, which is principally a tail market. Processors would lose the ability to produce 5-8 ounce tails, a popular size (and more valuable on a per pound basis than larger sizes).

A majority of wholesalers and exporters of spiny lobsters favor maintaining the minimum size limit at the three-inch carapace length and opine that any change to a larger minimum size would seriously damage the burgeoning live spiny lobster industry, as well as curtail the ability to produce small tails. Some wholesalers would prefer a smaller size limit (i.e., two and seven-eighths inches).

Future Outlook

The future of the Florida live spiny lobster industry looks bright. Spiny lobster is a very popular seafood item in much of the world. Recent trade negotiations have produced results that are expected to reduce foreign trade barriers and increase the opportunities for live spiny lobster exports in countries where demand is high.

Taiwan is currently applying to enter the GATT/WTO (General Agreement on Tariffs and Trade, World Trade Organization) and, upon joining, will incrementally reduce the tariff on spiny lobster from 42.5% to 15% over a five-year period on all market forms including live. This should open up this lucrative market further to U.S. exports. At the moment, the People's Republic of China is reportedly causing problems by insisting that they should be accepted into GATT/WTO before Taiwan.

Japan is expected to continue as a leading market. In fact, Tom Asakawa, Fishery Specialist at the U.S. Embassy in Tokyo, has listed spiny lobster as one of the two top prospects for increased U.S. exports to Japan. The Japanese tariff on spiny lobster is low (2.6%).

The European Union, as a result of the Uruguay Round of the GATT, has agreed to lower its tariff from 25% to 15.5%, incrementally over a five-year period, on all market forms of spiny lobster including live. This will greatly expand the potential for the development of live markets in Europe (primarily in Italy, France, and the Netherlands).

In summary, the development of live spiny lobster merchandising has provided increased viability and profitability for the Florida spiny lobster industry. Future growth will depend on the reduction of trade barriers and the prudent management of Florida's spiny lobster resource.